Horizontal Pipeline Connectors

Benefits of the Oil States VR System:
• Quick make-up
• 360° rotation
• Self alignment
• No onsite welding
• Tight tolerances
• Internal sealing
• No internal offset
• Pipe or casing compatible
• CSA & ASME design standards
• Horizontal or vertical applications
• Material options available
• High abrasion overlay available
Replaces bolted, flange connections

VR Connector

The Oil States VR Connector for horizontal applications where vertical removal of the pipe is needed. Quick connect technology. Make-up in just minutes.

SA Connector

The Oil States SA Connector is Self-Assembling for vertical applications such as casing and conductor lines.

HT Connector

The Oil States HT Connector is High-Torque for vertical applications where twisting is an issue. Commonly used in directional drilling.
Oil States Industries, Inc. receives CRN from ABSA for the VR Connector product line

*Houston, TX. July 31, 2015:* Oil States Industries, Inc., Houston Operations, has received the Canadian Registration Number (CRN OA15971.2) for the current VR Horizontal Pipeline Connector product line. The VR Connector utilizes a “quick-connect” method that permits the connection of pipelines and replacement of pipe segments where extremely tight tolerances exist and vertical removal of the pipe section may be required.

The Alberta Boilers Safety Association or ABSA reviewed all documents, calculations and design parameters of the VRC. ABSA is the certifying authority of Alberta for reviewing and approving pressure containing fittings and systems. DNV-GL witnessed the Design Qualification Testing (DQT) in Houston to verify compliance with all requirements.

Oil States will be demonstrating a full size 28” connector in Fort McMurray at the Oil Sands Show, September 15-16. The demonstration piece details a fully functioning connector and various connection methods used during installation.

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Oil States Industries, Inc. is a diverse company supplying products and services to Offshore Oil & Gas, Onshore Oil & Gas, Defense and General Industry. Three business units, comprised of the Elastomer Group, the Offshore Construction Group and the Marine Pipelines Group, service these markets. Oil States is headquartered in Arlington, Texas with locations in 11 countries and more than 1700 employees. Additional information is available at [www.oilstates.com](http://www.oilstates.com).
VR Connector Design Qualification Testing Summary

ABSA Certification in Process

The Oil States VR Connector has passed Design Qualification Testing (DQT) as witnessed by DNV GL in Houston, Texas. Paperwork has now been completed and submission made to ABSA for a CRN number in Alberta Canada. The design and testing parameters were in accordance with CSA Z662 and ASME B31.3.

Items covered under the testing procedure included:
- Torsion
- Bending
- Compression
- Pressure to 1150psig
- 100 Make/Break Cycles

All items tested were passed as designed.

The new Oil States VR Pipeline Connector is designed to facilitate the rotation or removal of horizontal pipe sections where little or no tolerance exists. The connector utilizes a four piece forging design and operates much like a quick-coupling. The lock ring holds a sliding coupling in place to ensure complete double O-ring sealing. Once the lock is expanded, the sliding coupling or box can be moved back to clear the pipe. The pipe can then be lifted out for replacement or rotated in-place to maximize wear-life as required.

Oil States Industries, Inc. has been developing specialized pipeline connectors and pipeline repair systems for the oil and gas industry for over 40 years. Products are available for land based, shallow water and deepwater applications. For more information visit www.oilstates.com.
### VR Connector Data Chart

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<th>Type</th>
<th>Mat Yield</th>
<th>Pipe Nominal OD</th>
<th>Pipe Wall Thickness</th>
<th>Connector OD</th>
<th>Connector ID</th>
<th>Made-up Length</th>
<th>Tension Yield</th>
<th>Bending Yield</th>
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